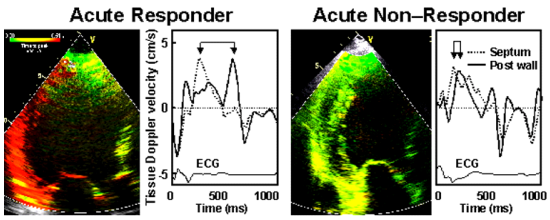
to CRT, although long term response was not studied. TSI has the potential for guiding patient selection.



POSTER SESSION

1093 Computed Tomography: Assessment of Calcification

Monday, March 08, 2004, Noon-2:00 p.m.
Morial Convention Center, Hall G
Presentation Hour: 1:00 p.m.-2:00 p.m.

1093-141 A Modified Diamond-Forrester Score Accurately Identifies Asymptomatic Patients With a High Coronary Artery Calcium Score

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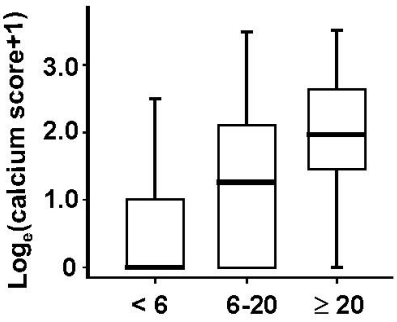
Background: A modified Diamond-Forrester (MDF) score for pretest probability of coronary artery disease (CAD) was recently developed for symptomatic patients presenting with suspected CAD. We assessed the hypothesis that the MDF score will identify asymptomatic patients with high coronary artery calcium (CAC) scores.
Methods: From September 2001 to July 2003, 12,171 asymptomatic patients completed health questionnaires and underwent electron beam computed tomography (EBCT). The MDF score, exclusive of the estrogen portion, was calculated for each patient using the following weighted risk factors: Age (men: <40 = 3 pts., 40-54 = 6 pts., ≥ 55 = 9 pts; women : <50 = 3, 50-64 = 6, ≥65 = 9), diabetes (2 pts. if positive), BMI >27, history of smoking, hyperlipidemia, hypertension, 1° history of family heart disease (1 pt. each if positive).
Results: Patients were grouped according to low, intermediate, and high MDF groups. Between these groups, there were significant differences between the average CAC scores, average age and sex adjusted percentile score, percent of patients with CAC = 0, and percent with CAC > 400 (Table 1).
Conclusion: In asymptomatic patients with a low MDF, CAC scoring appears to offer limited diagnostic information. EBCT may be of greatest value in patients with intermediate to high MDF scores. The MDF may serve as a useful and cost-effective tool for determining appropriate use of calcium scoring.

	Modified Diamond-Forrester Score Groups				
Men	*Low (3 to 6)*	*Intermed. (7 to 11)*	*High (12 to 16)*	*p value*	*Total sample*
Number of patients	845	5966	1262	-	8073
Mean CAC score (± SD)	14.7 ± 73.3	139.8 ± 351.4	401.7 ± 734.6	<0.001	167.6 ± 433.3
Mean percentile score (± SD)	16.5 ± 31.7	38.2 ± 35.9	53.8 ± 30.0	<0.001	38.4 ± 35.9
Percent of patients with CAC = 0	77.2	39.6	11.7	<0.001	39.2
Percent of patients with CAC >400	0.5	9.7	28.7	<0.001	11.7
Women	*Low (3 to 5)*	*Intermed. (6 to 10)*	*High (11 to 15)*	*p value*	*Total sample*
Number of patients	734	2883	481	-	4098
Mean CAC score (± SD)	4.4 ± 39.1	42.6 ± 148.1	176.8 ± 348.3	<0.001	54.7 ± 9.2
Mean percentile score	8.9 ± 26.3	26.3 ± 37.2	45.2 ± 36.7	<0.001	25.4 ± 36.8
Percent of patients with CAC = 0	89.6	65	33.5	<0.001	65.7
Percent of patients with CAC >400	0.1	2.7	12.9	<0.001	3.4

1093-142 Independent Information Provided by Framingham Risk Algorithm and Coronary Calcium Scores in a Large German Population Sample: Heinz Nixdorf Recall Study

Axel Schmermund, Nils Lehmann, Stefan Mohlenkamp, Andreas Stang, Susanne Moebus, Dietrich Gronemeyer, Rainer Seibel, Karl-Heinz Jockel, Raimund Erbel, The Heinz Nixdorf Recall Study Investigative Group, University Clinic Essen, Essen, Germany

The Heinz Nixdorf Recall study is an ongoing prospective population-based cohort study on cardiovascular risk factors and coronary calcium for predicting cardiovascular events. A random sample of men and women aged 45 – 75 years is recruited from mandatory citizen registries in the German Ruhr area cities of Bochum, Essen, and Mulheim. We report on the first 1,370 study participants free of ischemic heart disease. Mean age was 59 ± 8 years, and there were 657 men (48%). Coronary calcium was determined using electron-beam CT (EBCT) and the Agatston method. The Framingham risk algorithm was used to calculate absolute 10-year risk. Mean coronary calcium score was 157 ± 388 (25th percentile, 0; 50th, 13; 75th, 111). Mean Framingham risk was 11.2 ± 8.4% (25th percentile, 6%; 50th, 9%; 75th 14%). The correlation between Framingham risk and coronary calcium score was significant (r = 0.42; p < 0.001). However, the risk group classification often differed between the 2 methods. Using "high-risk thresholds", 182 subjects (13%) had a 10-year Framingham risk >= 20%, and 141 (10%) had a calcium score >= 400 (Figure). Whereas 49 subjects (4%) were classified "high-risk" by both methods and 1092 (80%) moderate or low risk, discordant classification was observed in 225 (16%) (kappa = 0.21). We conclude that approximately one out of 6 subjects in the general population is classified discordantly as "high-risk" by the Framingham algorithm or by coronary calcium scores. Implications for clinical management remain to be defined.



1093-143 Is There an Association of High-Sensitive C-Reactive Protein With Coronary Calcium? The Heinz Nixdorf Recall Study

Axel Schmermund, Andreas Stang, Susanne Moebus, Stefan Mohlenkamp, Nils Lehmann, Klaus Mann, Karl-Heinz Jockel, Raimund Erbel, The Heinz Nixdorf Recall Study Investigative Group, University Clinic Essen, Essen, Germany

Coronary calcium and high-sensitive C-reactive protein (CRP) may be useful for predicting cardiovascular events. The Heinz Nixdorf Recall study is an ongoing prospective population-based cohort study. A random sample of men and women aged 45 – 75 years is recruited in the German Ruhr area. We report on the first 1,370 study participants free of ischemic heart disease. Mean age was 59 ± 8 years, and there were 657 men (48%). Cardiovascular risk factors were determined by direct laboratory and anthropometric measurements. CRP was measured using a nephelometric assay (Dade Behring) and was non-missing in 1,298 (95%) participants. Coronary calcium was determined using electron-beam CT (EBCT, Agatston method). Mean CRP was 0.26 ± 0.41 mg/dl (25th percentile, 0.07; 50th, 0.14; 75th 0.28) and was within the normal range (< 1.0 mg/dl) in 1,262 subjects (97%). Mean coronary calcium score was 161 ± 394 (25th percentile, 0; 50th, 14; 75th, 115). There was a weak association of normal-range CRP with coronary calcium (Spearman correlation coefficient 0.15, p < 0.0001) (Figure). After adjustment for traditional risk factors, the correlation coefficient was 0.07 (p = 0.01). After additional adjustment for body mass index, no significant association could be demonstrated (correlation coefficient 0.03, p = 0.33).
We conclude that no significant association remains between CRP and coronary calcium after adjusting for traditional risk factors and body mass index in the general population in the German Ruhr area.